Tutorial 2

List in Python

Exercise 1

Write a program to calculate the average value of list elements,

e.g. 5, 20, 30, 35, -70, -100, 40

Exercise 2

Write a Python program to generate and print a list of first and last 4 elements where the values are square of numbers between 1 and 25 (both included).

Output:
```
[1, 4, 9, 16]
[484, 529, 576, 625]
```

TUPLE

Exercise 3
Write a Python program to calculate the average value of the numbers in tuples inside a tuple.

```
Original Tuple:
((6, 10, 10, 12, 14), (30, 45, 54), (81, 80, 39, 32), (1, 2, 3, 4))
Average value of each tuples:
 [[10.4], [43.0], [58.0], [2.5]]

Original Tuple:
((4, 10, -5), (30, -15, 56), (81, -60, -39), (-10, 2, 3))
Average value of each tuples:
[[3.0], [23.666666666666668], [-6.0], [-1.6666666666666667]]
```

Python Class

Exercise 4

Complete the following program so that it gives the outputs as shown.

```
class Square(object):

    # instance data members
    def __init__(self, theLength=2):
        self.length = theLength

    def getLength(self):
        return self.length

    # set the length of the square to theLength
    def setLength(self, theLength):
        self.length = theLength

    # return area of the square
    def area(self):
    . . . .

    # print the square length
    def outputLength(self):
        print("The length is " +str(self.length))

    # print the area and perimeter
    def printAP(self):
    . . . .

g = Square()
h = Square(5)

g.outputLength()
g.printAP()
h.outputLength()
h.printAP()
print("The length is " + str(h.getLength()))
h.setLength(4)
print("The length is now " + str(h.getLength()))
```

Output:

```
The length is 2
The area is 4
The perimeter is 8
The length is 5
The area is 25
The perimeter is 20
The length is 5
The length is now 4
```

Hint:
Convert integer to string in Python
https://www.geeksforgeeks.org/convert-integer-to-string-in-python/

References:

https://www.w3schools.com/python/ref_math_isqrt.asp